CLAIMS

1. A method of fabricating a printhead chip that incorporates a plurality of nozzle arrangements, each nozzle arrangement having nozzle chamber walls that define a nozzle chamber and an ink ejection port bounded by a rim, the method comprising the steps of:

depositing a sacrificial layer on a substrate having drive circuitry formed on the substrate;

etching the sacrificial layer to define deposition zones for the nozzle chamber walls and the rim;

depositing a conformal layer of structural material on the sacrificial layer;

planarizing the conformal layer to a predetermined depth to define each ink ejection port bounded by its respective rim; and

etching away the sacrificial layer.

2. A method as claimed in claim 1 which includes the steps of:

carrying out an integrated circuit fabrication process on the substrate to form the drive circuitry;

depositing protective layers on the substrate to protect the drive circuitry;

depositing a sacrificial material on the substrate to support a plurality of actuators during formation of the actuators;

etching the protective layers and the sacrificial material to define a plurality of connection points between the actuators and the drive circuitry; and

forming a plurality of actuators on the substrate using a micro-electromechanical systems fabrication technique such that each actuator is operatively positioned with respect to one respective nozzle chamber and is connected to the drive circuitry with the connection points to be displaced upon receipt of an electrical signal from the drive circuitry, thereby to displace ink from the ink ejection port, prior to depositing said sacrificial layer.

3. A method as claimed in claim 2, in which the step of forming the plurality of actuators includes the step of forming a plurality of actuating portions connected to the drive circuitry and corresponding ink displacement members extending from respective actuating portions into a region to be bounded by the nozzle chamber walls.

4. A method as claimed in claim 2, which includes the step of etching the sacrificial layer to define a deposition zone for a plurality of protective shells such that, when the sacrificial material is removed, the conformal layer of structural material defines a plurality of protective shells with each actuator being positioned within a respective protective shell.

5. A method as claimed in claim 3, in which the step of forming the actuating portions includes the steps of:

depositing a layer of resistive heating material such that the heating material makes electrical contact with the drive circuitry via the connection points;

etching the layer of heating material to define a plurality of electrical resistive heating circuits; and

depositing a layer of resiliently flexible material on the layer of heating material.

6. A method as claimed in claim 5, in which the steps of depositing the layer of heating material and etching the layer of heating material are such that they result in the formation of an arm that extends from each respective heating circuit and the displacement member that is positioned on each respective arm.

7. A method as claimed in claim 6, which includes the step of etching discontinuities in the layer of heating material such that the displacement members are electrically isolated from the respective heating circuits.

8. A method as claimed in claim 5, in which the heating material is titanium nitride and the resiliently flexible material is glass.

9. A printer which incorporates at least one printhead chip fabricated according to the method as claimed in claim 1.